

=====

Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866)
217-9197 (toll free).

Reviewer: Keisha Douglas

Timestamp: [year=2008; month=6; day=18; hr=16; min=45; sec=53; ms=322;]

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Sequence Listing was accepted.

If you need help call the Patent Electronic Business Center at (866)
217-9197 (toll free).

Reviewer: Keisha Douglas

Timestamp: [year=2008; month=6; day=18; hr=16; min=42; sec=8; ms=656;]

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Application No: 10574424 Version No: 3.1

Input Set:

Output Set:

Started: 2008-06-18 16:37:56.814
Finished: 2008-06-18 16:37:58.167
Elapsed: 0 hr(s) 0 min(s) 1 sec(s) 353 ms
Total Warnings: 12
Total Errors: 0
No. of SeqIDs Defined: 12
Actual SeqID Count: 12

Error code	Error Description
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W 402	Undefined organism found in <213> in SEQ ID (2)
W 402	Undefined organism found in <213> in SEQ ID (3)
W 402	Undefined organism found in <213> in SEQ ID (4)
W 402	Undefined organism found in <213> in SEQ ID (5)
W 402	Undefined organism found in <213> in SEQ ID (6)
W 402	Undefined organism found in <213> in SEQ ID (7)
W 402	Undefined organism found in <213> in SEQ ID (8)
W 213	Artificial or Unknown found in <213> in SEQ ID (9)
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W 402	Undefined organism found in <213> in SEQ ID (11)
W 402	Undefined organism found in <213> in SEQ ID (12)

SEQUENCE LISTING

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<120> LIQUID VACCINES FOR MULTIPLE MENINGOCOCCAL SEROGROUPS

<130> PP021401.0012

<140> 10/574,424

<141> 2006-04-04

<150> GB0323102.4

<151> 2003-10-02

<150> GB0412052.3

<151> 2004-05-28

<160> 12

<170> SeqWin99, version 1.02

<210> 1

<211> 350

<212> PRT

<213> N. meningitidis

<400> 1

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Phe Cys Ser Gly Ala Leu Ala Ala Thr Asn Asp Asp Asp Val Lys Lys
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Ala Ala Thr Val Ala Ile Ala Ala Ala Tyr Asn Asn Gly Gln Glu Ile
35 40 45

Asn Gly Phe Lys Ala Gly Glu Thr Ile Tyr Asp Ile Asp Glu Asp Gly
50 55 60

Thr Ile Thr Lys Lys Asp Ala Thr Ala Ala Asp Val Glu Ala Asp Asp
65 70 75 80

Phe Lys Gly Leu Gly Leu Lys Lys Val Val Thr Asn Leu Thr Lys Thr
85 90 95

Val Asn Glu Asn Lys Gln Asn Val Asp Ala Lys Val Lys Ala Ala Glu
100 105 110

Ser Glu Ile Glu Lys Leu Thr Thr Lys Leu Ala Asp Thr Asp Ala Ala
115 120 125

Leu Ala Asp Thr Asp Ala Ala Leu Asp Ala Thr Thr Asn Ala Leu Asn
130 135 140

Lys Leu Gly Glu Asn Ile Thr Thr Phe Ala Glu Glu Thr Lys Thr Asn
145 150 155 160

Ile Val Lys Ile Asp Glu Lys Leu Glu Ala Val Ala Asp Thr Val Asp
165 170 175

Lys His Ala Glu Ala Phe Asn Asp Ile Ala Asp Ser Leu Asp Glu Thr
180 185 190

Asn Thr Lys Ala Asp Glu Ala Val Lys Thr Ala Asn Glu Ala Lys Gln
195 200 205

Thr Ala Glu Glu Thr Lys Gln Asn Val Asp Ala Lys Val Lys Ala Ala
210 215 220

Glu Thr Ala Ala Gly Lys Ala Glu Ala Ala Ala Gly Thr Ala Asn Thr
225 230 235 240

Ala Ala Asp Lys Ala Glu Ala Val Ala Ala Lys Val Thr Asp Ile Lys
245 250 255

Ala Asp Ile Ala Thr Asn Lys Asp Asn Ile Ala Lys Lys Ala Asn Ser
260 265 270

Ala Asp Val Tyr Thr Arg Glu Glu Ser Asp Ser Lys Phe Val Arg Ile
275 280 285

Asp Gly Leu Asn Ala Thr Thr Glu Lys Leu Asp Thr Arg Leu Ala Ser
290 295 300

Ala Glu Lys Ser Ile Ala Asp His Asp Thr Arg Leu Asn Gly Leu Asp
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<211> 327

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<213> N. meningitidis

<400> 2

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Ala Ala Tyr Asn Asn Gly Gln Glu Ile Asn Gly Phe Lys Ala Gly Glu
20 25 30

Thr Ile Tyr Asp Ile Asp Glu Asp Gly Thr Ile Thr Lys Lys Asp Ala
35 40 45

Thr Ala Ala Asp Val Glu Ala Asp Asp Phe Lys Gly Leu Gly Leu Lys
50 55 60

Lys Val Val Thr Asn Leu Thr Lys Thr Val Asn Glu Asn Lys Gln Asn
65 70 75 80

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Leu	Asp	Ala	Thr	Thr	Asn	Ala	Leu	Asn	Lys	Leu	Gly	Glu	Asn	Ile	Thr			
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Thr	Phe	Ala	Glu	Glu	Thr	Lys	Thr	Asn	Ile	Val	Lys	Ile	Asp	Glu	Lys			
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Leu	Glu	Ala	Val	Ala	Asp	Thr	Val	Asp	Lys	His	Ala	Glu	Ala	Phe	Asn			
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Asp	Ile	Ala	Asp	Ser	Leu	Asp	Glu	Thr	Asn	Thr	Lys	Ala	Asp	Glu	Ala			
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Val	Lys	Thr	Ala	Asn	Glu	Ala	Lys	Gln	Thr	Ala	Glu	Glu	Thr	Lys	Gln			
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Asn	Val	Asp	Ala	Lys	Val	Lys	Ala	Ala	Glu	Thr	Ala	Ala	Gly	Lys	Ala			
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Glu	Ala	Ala	Ala	Gly	Thr	Ala	Asn	Thr	Ala	Ala	Asp	Lys	Ala	Glu	Ala			
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Val	Ala	Ala	Lys	Val	Thr	Asp	Ile	Lys	Ala	Asp	Ile	Ala	Thr	Asn	Lys			
225					230				235						240			
Asp	Asn	Ile	Ala	Lys	Lys	Ala	Asn	Ser	Ala	Asp	Val	Tyr	Thr	Arg	Glu			
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Glu	Ser	Asp	Ser	Lys	Phe	Val	Arg	Ile	Asp	Gly	Leu	Asn	Ala	Thr	Thr			
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Glu	Lys	Leu	Asp	Thr	Arg	Leu	Ala	Ser	Ala	Glu	Lys	Ser	Ile	Ala	Asp			
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His	Asp	Thr	Arg	Leu	Asn	Gly	Leu	Asp	Lys	Thr	Val	Ser	Asp	Leu	Arg			
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Lys	Glu	Thr	Arg	Gln	Gly	Leu	Ala	Glu	Gln	Ala	Ala	Leu	Ser	Gly	Leu			
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<210> 3
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 <212> PRT
 <213> N. meningitidis

<400> 3
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Leu Asp His Lys Asp Lys Gly Leu Gln Ser Leu Thr Leu Asp Gln Ser
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 Val Arg Lys Asn Glu Lys Leu Lys Leu Ala Ala Gln Gly Ala Glu Lys
 35 40 45
 Thr Tyr Gly Asn Gly Asp Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp
 50 55 60
 Lys Val Ser Arg Phe Asp Phe Ile Arg Gln Ile Glu Val Asp Gly Gln
 65 70 75 80
 Leu Ile Thr Leu Glu Ser Gly Glu Phe Gln Val Tyr Lys Gln Ser His
 85 90 95
 Ser Ala Leu Thr Ala Phe Gln Thr Glu Gln Ile Gln Asp Ser Glu His
 100 105 110
 Ser Gly Lys Met Val Ala Lys Arg Gln Phe Arg Ile Gly Asp Ile Ala
 115 120 125
 Gly Glu His Thr Ser Phe Asp Lys Leu Pro Glu Gly Gly Arg Ala Thr
 130 135 140
 Tyr Arg Gly Thr Ala Phe Gly Ser Asp Asp Ala Gly Gly Lys Leu Thr
 145 150 155 160
 Tyr Thr Ile Asp Phe Ala Ala Lys Gln Gly Asn Gly Lys Ile Glu His
 165 170 175
 Leu Lys Ser Pro Glu Leu Asn Val Asp Leu Ala Ala Ala Asp Ile Lys
 180 185 190
 Pro Asp Gly Lys Arg His Ala Val Ile Ser Gly Ser Val Leu Tyr Asn
 195 200 205
 Gln Ala Glu Lys Gly Ser Tyr Ser Leu Gly Ile Phe Gly Gly Lys Ala
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 Gln Glu Val Ala Gly Ser Ala Glu Val Lys Thr Val Asn Gly Ile Arg
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 His Ile Gly Leu Ala Ala Lys Gln
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<210> 4
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 <213> N. meningitidis

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Arg Ile Glu Thr Thr Ala Arg Ser Tyr Leu Arg Gln Asn Asn Gln Thr
 35 40 45
 Lys Gly Tyr Thr Pro Gln Ile Ser Val Val Gly Tyr Asn Arg His Leu
 50 55 60
 Leu Leu Leu Gly Gln Val Ala Thr Glu Gly Glu Lys Gln Phe Val Gly
 65 70 75 80
 Gln Ile Ala Arg Ser Glu Gln Ala Ala Glu Gly Val Tyr Asn Tyr Ile
 85 90 95
 Thr Val Ala Ser Leu Pro Arg Thr Ala Gly Asp Ile Ala Gly Asp Thr
 100 105 110
 Trp Asn Thr Ser Lys Val Arg Ala Thr Leu Leu Gly Ile Ser Pro Ala
 115 120 125
 Thr Gln Ala Arg Val Lys Ile Val Thr Tyr Gly Asn Val Thr Tyr Val
 130 135 140
 Met Gly Ile Leu Thr Pro Glu Glu Gln Ala Gln Ile Thr Gln Lys Val
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 Val Gln Arg

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 <213> N. meningitidis

<400> 5
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 20 25 30
 Gly Ser Val Glu Phe Asp Gln Ala Lys Arg Asp Gly Lys Ile Asp Ile
 35 40 45
 Thr Ile Pro Ile Ala Asn Leu Gln Ser Gly Ser Gln His Phe Thr Asp
 50 55 60
 His Leu Lys Ser Ala Asp Ile Phe Asp Ala Ala Gln Tyr Pro Asp Ile
 65 70 75 80
 Arg Phe Val Ser Thr Lys Phe Asn Phe Asn Gly Lys Lys Leu Val Ser
 85 90 95
 Val Asp Gly Asn Leu Thr Met His Gly Lys Thr Ala Pro Val Lys Leu
 100 105 110

Lys Ala Glu Lys Phe Asn Cys Tyr Gln Ser Pro Met Glu Lys Thr Glu
115 120 125

Val Cys Gly Gly Asp Phe Ser Thr Thr Ile Asp Arg Thr Lys Trp Gly
130 135 140

Met Asp Tyr Leu Val Asn Val Gly Met Thr Lys Ser Val Arg Ile Asp
145 150 155 160

Ile Gln Ile Glu Ala Ala Lys Gln
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<212> PRT
<213> N. meningitidis

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Gly Ser Gln Gly Gln Gly Ala Pro Ser Ala Gln Gly Ser Gln Asp Met
35 40 45

Ala Ala Val Ser Glu Glu Asn Thr Gly Asn Gly Gly Ala Val Thr Ala
50 55 60

Asp Asn Pro Lys Asn Glu Asp Glu Val Ala Gln Asn Asp Met Pro Gln
65 70 75 80

Asn Ala Ala Gly Thr Asp Ser Ser Thr Pro Asn His Thr Pro Asp Pro
85 90 95

Asn Met Leu Ala Gly Asn Met Glu Asn Gln Ala Thr Asp Ala Gly Glu
100 105 110

Ser Ser Gln Pro Ala Asn Gln Pro Asp Met Ala Asn Ala Ala Asp Gly
115 120 125

Met Gln Gly Asp Asp Pro Ser Ala Gly Gly Gln Asn Ala Gly Asn Thr
130 135 140

Ala Ala Gln Gly Ala Asn Gln Ala Gly Asn Asn Gln Ala Ala Gly Ser
145 150 155 160

Ser Asp Pro Ile Pro Ala Ser Asn Pro Ala Pro Ala Asn Gly Gly Ser
165 170 175

Asn Phe Gly Arg Val Asp Leu Ala Asn Gly Val Leu Ile Asp Gly Pro
180 185 190

Ser Gln Asn Ile Thr Leu Thr His Cys Lys Gly Asp Ser Cys Ser Gly
195 200 205

Asn Asn Phe Leu Asp Glu Glu Val Gln Leu Lys Ser Glu Phe Glu Lys
 210 215 220
 Leu Ser Asp Ala Asp Lys Ile Ser Asn Tyr Lys Lys Asp Gly Lys Asn
 225 230 235 240
 Asp Lys Phe Val Gly Leu Val Ala Asp Ser Val Gln Met Lys Gly Ile
 245 250 255
 Asn Gln Tyr Ile Ile Phe Tyr Lys Pro Lys Pro Thr Ser Phe Ala Arg
 260 265 270
 Phe Arg Arg Ser Ala Arg Ser Arg Arg Ser Leu Pro Ala Glu Met Pro
 275 280 285
 Leu Ile Pro Val Asn Gln Ala Asp Thr Leu Ile Val Asp Gly Glu Ala
 290 295 300
 Val Ser Leu Thr Gly His Ser Gly Asn Ile Phe Ala Pro Glu Gly Asn
 305 310 315 320
 Tyr Arg Tyr Leu Thr Tyr Gly Ala Glu Lys Leu Pro Gly Gly Ser Tyr
 325 330 335
 Ala Leu Arg Val Gln Gly Glu Pro Ala Lys Gly Glu Met Leu Ala Gly
 340 345 350
 Ala Ala Val Tyr Asn Gly Glu Val Leu His Phe His Thr Glu Asn Gly
 355 360 365
 Arg Pro Tyr Pro Thr Arg Gly Arg Phe Ala Ala Lys Val Asp Phe Gly
 370 375 380
 Ser Lys Ser Val Asp Gly Ile Ile Asp Ser Gly Asp Asp Leu His Met
 385 390 395 400
 Gly Thr Gln Lys Phe Lys Ala Ala Ile Asp Gly Asn Gly Phe Lys Gly
 405 410 415
 Thr Trp Thr Glu Asn Gly Ser Gly Asp Val Ser Gly Lys Phe Tyr Gly
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 <212> PRT
 <213> N. meningitidis

<400> 7
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Gln	Ala	Gly	Ser	Gln	Gly	Gln	Gly	Ala	Pro	Ser	Ala	Gln	Gly	Gly	Gln	35	40	45
Asp	Met	Ala	Ala	Val	Ser	Glu	Glu	Asn	Thr	Gly	Asn	Gly	Gly	Ala	Ala	50	55	60
Ala	Thr	Asp	Lys	Pro	Lys	Asn	Glu	Asp	Glu	Gly	Ala	Gln	Asn	Asp	Met	65	70	75
Pro	Gln	Asn	Ala	Ala	Asp	Thr	Asp	Ser	Leu	Thr	Pro	Asn	His	Thr	Pro	85	90	95
Ala	Ser	Asn	Met	Pro	Ala	Gly	Asn	Met	Glu	Asn	Gln	Ala	Pro	Asp	Ala	100	105	110
Gly	Glu	Ser	Glu	Gln	Pro	Ala	Asn	Gln	Pro	Asp	Met	Ala	Asn	Thr	Ala	115	120	125
Asp	Gly	Met	Gln	Gly	Asp	Asp	Pro	Ser	Ala	Gly	Gly	Glu	Asn	Ala	Gly	130	135	140
Asn	Thr	Ala	Ala	Gln	Gly	Thr	Asn	Gln	Ala	Glu	Asn	Asn	Gln	Thr	Ala	145	150	155
Gly	Ser	Gln	Asn	Pro	Ala	Ser	Ser	Thr	Asn	Pro	Ser	Ala	Thr	Asn	Ser	165	170	175
Gly	Gly	Asp	Phe	Gly	Arg	Thr	Asn	Val	Gly	Asn	Ser	Val	Val	Ile	Asp	180	185	190
Gly	Pro	Ser	Gln	Asn	Ile	Thr	Leu	Thr	His	Cys	Lys	Gly	Asp	Ser	Cys	195	200	205
Ser	Gly	Asn	Asn	Phe	Leu	Asp	Glu	Glu	Val	Gln	Leu	Lys	Ser	Glu	Phe	210	215	220
Glu	Lys	Leu	Ser	Asp	Ala	Asp	Lys	Ile	Ser	Asn	Tyr	Lys	Lys	Asp	Gly	225	230	235
Lys	Asn	Asp	Gly	Lys	Asn	Asp	Lys	Phe	Val	Gly	Leu	Val	Ala	Asp	Ser	245	250	255
Val	Gln	Met	Lys	Gly	Ile	Asn	Gln	Tyr	Ile	Ile	Phe	Tyr	Lys	Pro	Lys	260	265	270
Pro	Thr	Ser	Phe	Ala	Arg	Phe	Arg	Arg	Ser	Ala	Arg	S						

SEQUENCE LISTING

<110> CONTORNI, Mario

<120> LIQUID VACCINES FOR MULTIPLE MENINGOCOCCAL SEROGROUPS

<130> PP021401.0012

<140> 10/574,424

<141> 2006-04-04

<150> GB0323102.4

<151> 2003-10-02

<150> GB0412052.3

<151> 2004-05-28

<160> 12

<170> SeqWin99, version 1.02

<210> 1

<211> 350

<212> PRT

<213> N. meningitidis

<400> 1

Met Lys His Phe Pro Ser Lys Val Leu Thr Thr Ala Ile Leu Ala Thr
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Phe Cys Ser Gly Ala Leu Ala Ala Thr Asn Asp Asp Asp Val Lys Lys
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Ala Ala Thr Val Ala Ile Ala Ala Ala Tyr Asn Asn Gly Gln Glu Ile
35 40 45

Asn Gly Phe Lys Ala Gly Glu Thr Ile Tyr Asp Ile Asp Glu Asp Gly
50 55 60

Thr Ile Thr Lys Lys Asp Ala Thr Ala Ala Asp Val Glu Ala Asp Asp
65 70 75 80

Phe Lys Gly Leu Gly Leu Lys Lys Val Val Thr Asn Leu Thr Lys Thr
85 90 95

Val Asn Glu Asn Lys Gln Asn Val Asp Ala Lys Val Lys Ala Ala Glu
100 105 110

Ser Glu Ile Glu Lys Leu Thr Thr Lys Leu Ala Asp Thr Asp Ala Ala
115 120 125

Leu Ala Asp Thr Asp Ala Ala Leu Asp Ala Thr Thr Asn Ala Leu Asn
130 135 140

Lys Leu Gly Glu Asn Ile Thr Thr Phe Ala Glu Glu Thr Lys Thr Asn
145 150 155 160

Ile Val Lys Ile Asp Glu Lys Leu Glu Ala Val Ala Asp Thr Val Asp		
165	170	175
Lys His Ala Glu Ala Phe Asn Asp Ile Ala Asp Ser Leu Asp Glu Thr		
180	185	190
Asn Thr Lys Ala Asp Glu Ala Val Lys Thr Ala Asn Glu Ala Lys Gln		
195	200	205
Thr Ala Glu Glu Thr Lys Gln Asn Val Asp Ala Lys Val Lys Ala Ala		
210	215	220
Glu Thr Ala Ala Gly Lys Ala Glu Ala Ala Ala Gly Thr Ala Asn Thr		
225	230	235
Ala Ala Asp Lys Ala Glu Ala Val Ala Ala Lys Val Thr Asp Ile Lys		
245	250	255
Ala Asp Ile Ala Thr Asn Lys Asp Asn Ile Ala Lys Lys Ala Asn Ser		
260	265	270
Ala Asp Val Tyr Thr Arg Glu Glu Ser Asp Ser Lys Phe Val Arg Ile		
275	280	285
Asp Gly Leu Asn Ala Thr Thr Glu Lys Leu Asp Thr Arg Leu Ala Ser		
290	295	300
Ala Glu Lys Ser Ile Ala Asp His Asp Thr Arg Leu Asn Gly Leu Asp		
305	310	315
Lys Thr Val Ser Asp Leu Arg Lys Glu Thr Arg Gln Gly Leu Ala Glu		
325	330	335
Gln Ala Ala Leu Ser Gly Leu Phe Gln Pro Tyr Asn Val Gly		
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Ala Ala Tyr Asn Asn Gly Gln Glu Ile Asn Gly Phe Lys Ala Gly Glu		
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Thr Ile Tyr Asp Ile Asp Glu Asp Gly Thr Ile Thr Lys Lys Asp Ala		
35	40	45
Thr Ala Ala Asp Val Glu Ala Asp Asp Phe Lys Gly Leu Gly Leu Lys		
50	55	60
Lys Val Val Thr Asn Leu Thr Lys Thr Val Asn Glu Asn Lys Gln Asn		
65	70	75
		80

Val	Asp	Ala	Lys	Val	Lys	Ala	Ala	Glu	Ser	Glu	Ile	Glu	Lys	Leu	Thr			
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Thr	Lys	Leu	Ala	Asp	Thr	Asp	Ala	Ala	Leu	Ala	Asp	Thr	Asp	Ala	Ala			
			100					105					110					
Leu	Asp	Ala	Thr	Thr	Asn	Ala	Leu	Asn	Lys	Leu	Gly	Glu	Asn	Ile	Thr			
		115					120					125						
Thr	Phe	Ala	Glu	Glu	Thr	Lys	Thr	Asn	Ile	Val	Lys	Ile	Asp	Glu	Lys			
		130					135					140						
Leu	Glu	Ala	Val	Ala	Asp	Thr	Val	Asp	Lys	His	Ala	Glu	Ala	Phe	Asn			
145					150					155					160			
Asp	Ile	Ala	Asp	Ser	Leu	Asp	Glu	Thr	Asn	Thr	Lys	Ala	Asp	Glu	Ala			
				165					170					175				
Val	Lys	Thr	Ala	Asn	Glu	Ala	Lys	Gln	Thr	Ala	Glu	Glu	Thr	Lys	Gln			
			180					185					190					
Asn	Val	Asp	Ala	Lys	Val	Lys	Ala	Ala	Glu	Thr	Ala	Ala	Gly	Lys	Ala			
		195					200						205					
Glu	Ala	Ala	Ala	Gly	Thr	Ala	Asn	Thr	Ala	Ala	Asp	Lys	Ala	Glu	Ala			
		210				215					220							
Val	Ala	Ala	Lys	Val	Thr	Asp	Ile	Lys	Ala	Asp	Ile	Ala	Thr	Asn	Lys			
225					230				235						240			
Asp	Asn	Ile	Ala	Lys	Lys	Ala	Asn	Ser	Ala	Asp	Val	Tyr	Thr	Arg	Glu			
			245						250					255				
Glu	Ser	Asp	Ser	Lys	Phe	Val	Arg	Ile	Asp	Gly	Leu	Asn	Ala	Thr	Thr			
			260					265					270					
Glu	Lys	Leu	Asp	Thr	Arg	Leu	Ala	Ser	Ala	Glu	Lys	Ser	Ile	Ala	Asp			
		275					280					285						
His	Asp	Thr	Arg	Leu	Asn	Gly	Leu	Asp	Lys	Thr	Val	Ser	Asp	Leu	Arg			
		290				295					300							
Lys	Glu	Thr	Arg	Gln	Gly	Leu	Ala	Glu	Gln	Ala	Ala	Leu	Ser	Gly	Leu			
305					310				315						320			
Phe	Gln	Pro	Tyr	Asn	Val	Gly												
				325														

<210> 3
 <211> 248
 <212> PRT
 <213> N. meningitidis

<400> 3
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 1 5 10 15

Leu Asp His Lys Asp Lys Gly Leu Gln Ser Leu Thr Leu Asp Gln Ser
 20 25 30
 Val Arg Lys Asn Glu Lys Leu Lys Leu Ala Ala Gln Gly Ala Glu Lys
 35 40 45
 Thr Tyr Gly Asn Gly Asp Ser Leu Asn Thr Gly Lys Leu Lys Asn Asp
 50 55 60
 Lys Val Ser Arg Phe Asp Phe Ile Arg Gln Ile Glu Val Asp Gly Gln
 65 70 75 80
 Leu Ile Thr Leu Glu Ser Gly Glu Phe Gln Val Tyr Lys Gln Ser His
 85 90 95
 Ser Ala Leu Thr Ala Phe Gln Thr Glu Gln Ile Gln Asp Ser Glu His
 100 105 110
 Ser Gly Lys Met Val Ala Lys Arg Gln Phe Arg Ile Gly Asp Ile Ala
 115 120 125
 Gly Glu His Thr Ser Phe Asp Lys Leu Pro Glu Gly Gly Arg Ala Thr
 130 135 140
 Tyr Arg Gly Thr Ala Phe Gly Ser Asp Asp Ala Gly Gly Lys Leu Thr
 145 150 155 160
 Tyr Thr Ile Asp Phe Ala Ala Lys Gln Gly Asn Gly Lys Ile Glu His
 165 170 175
 Leu Lys Ser Pro Glu Leu Asn Val Asp Leu Ala Ala Ala Asp Ile Lys
 180 185 190
 Pro Asp Gly Lys Arg His Ala Val Ile Ser Gly Ser Val Leu Tyr Asn
 195 200 205
 Gln Ala Glu Lys Gly Ser Tyr Ser Leu Gly Ile Phe Gly Gly Lys Ala
 210 215 220
 Gln Glu Val Ala Gly Ser Ala Glu Val Lys Thr Val Asn Gly Ile Arg
 225 230 235 240
 His Ile Gly Leu Ala Ala Lys Gln
 245

<210> 4
 <211> 179
 <212> PRT
 <213> N. meningitidis

<400> 4
 Val Ser Ala Val Ile Gly Ser Ala Ala Val Gly Ala Lys Ser Ala Val
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Asp Arg Arg Thr Thr Gly Ala Gln Thr Asp Asp Asn Val Met Ala Leu
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Arg Ile Glu Thr Thr Ala Arg Ser Tyr Leu Arg Gln Asn Asn Gln Thr
 35 40 45
 Lys Gly Tyr Thr Pro Gln Ile Ser Val Val Gly Tyr Asn Arg His Leu
 50 55 60
 Leu Leu Leu Gly Gln Val Ala Thr Glu Gly Glu Lys Gln Phe Val Gly
 65 70 75 80
 Gln Ile Ala Arg Ser Glu Gln Ala Ala Glu Gly Val Tyr Asn Tyr Ile
 85 90 95
 Thr Val Ala Ser Leu Pro Arg Thr Ala Gly Asp Ile Ala Gly Asp Thr
 100 105 110
 Trp Asn Thr Ser Lys Val Arg Ala Thr Leu Leu Gly Ile Ser Pro Ala
 115 120 125
 Thr Gln Ala Arg Val Lys Ile Val Thr Tyr Gly Asn Val Thr Tyr Val
 130 135 140
 Met Gly Ile Leu Thr Pro Glu Glu Gln Ala Gln Ile Thr Gln Lys Val
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 Ser Thr Thr Val Gly Val Gln Lys Val Ile Thr Leu Tyr Gln Asn Tyr
 165 170 175
 Val Gln Arg

<210> 5
 <211> 168
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 <213> N. meningitidis

<400> 5
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 20 25 30
 Gly Ser Val Glu Phe Asp Gln Ala Lys Arg Asp Gly Lys Ile Asp Ile
 35 40 45
 Thr Ile Pro Ile Ala Asn Leu Gln Ser Gly Ser Gln His Phe Thr Asp
 50 55 60
 His Leu Lys Ser Ala Asp Ile Phe Asp Ala Ala Gln Tyr Pro Asp Ile
 65 70 75 80
 Arg Phe Val Ser Thr Lys Phe Asn Phe Asn Gly Lys Lys Leu Val Ser
 85 90 95
 Val Asp Gly Asn Leu Thr Met His Gly Lys Thr Ala Pro Val Lys Leu
 100 105 110

Lys Ala Glu Lys Phe Asn Cys Tyr Gln Ser Pro Met Glu Lys Thr Glu
115 120 125

Val Cys Gly Gly Asp Phe Ser Thr Thr Ile Asp Arg Thr Lys Trp Gly
130 135 140

Met Asp Tyr Leu Val Asn Val Gly Met Thr Lys Ser Val Arg Ile Asp
145 150 155 160

Ile Gln Ile Glu Ala Ala Lys Gln
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<210> 6

<211> 464

<212> PRT

<213> N. meningitidis

<400> 6

Ser Pro Asp Val Lys Ser Ala Asp Thr Leu Ser Lys Pro Ala Ala Pro
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20 25 30

Gly Ser Gln Gly Gln Gly Ala Pro Ser Ala Gln Gly Ser Gln Asp Met
35 40 45

Ala Ala Val Ser Glu Glu Asn Thr Gly Asn Gly Gly Ala Val Thr Ala
50 55 60

Asp Asn Pro Lys Asn Glu Asp Glu Val Ala Gln Asn Asp Met Pro Gln
65 70 75 80

Asn Ala Ala Gly Thr Asp Ser Ser Thr Pro Asn His Thr Pro Asp Pro
85 90 95

Asn Met Leu Ala Gly Asn Met Glu Asn Gln Ala Thr Asp Ala Gly Glu
100 105 110

Ser Ser Gln Pro Ala Asn Gln Pro Asp Met Ala Asn Ala Ala Asp Gly
115 120 125

Met Gln Gly Asp Asp Pro Ser Ala Gly Gly Gln Asn Ala Gly Asn Thr
130 135 140

Ala Ala Gln Gly Ala Asn Gln Ala Gly Asn Asn Gln Ala Ala Gly Ser
145 150 155 160

Ser Asp Pro Ile Pro Ala Ser Asn Pro Ala Pro Ala Asn Gly Gly Ser
165 170 175

Asn Phe Gly Arg Val Asp Leu Ala Asn Gly Val Leu Ile Asp Gly Pro
180 185 190

Ser Gln Asn Ile Thr Leu Thr His Cys Lys Gly Asp Ser Cys Ser Gly
195 200 205

Asn Asn Phe Leu Asp Glu Glu Val Gln Leu Lys Ser Glu Phe Glu Lys
 210 215 220
 Leu Ser Asp Ala Asp Lys Ile Ser Asn Tyr Lys Lys Asp Gly Lys Asn
 225 230 235 240
 Asp Lys Phe Val Gly Leu Val Ala Asp Ser Val Gln Met Lys Gly Ile
 245 250 255
 Asn Gln Tyr Ile Ile Phe Tyr Lys Pro Lys Pro Thr Ser Phe Ala Arg
 260 265 270
 Phe Arg Arg Ser Ala Arg Ser Arg Arg Ser Leu Pro Ala Glu Met Pro
 275 280 285
 Leu Ile Pro Val Asn Gln Ala Asp Thr Leu Ile Val Asp Gly Glu Ala
 290 295 300
 Val Ser Leu Thr Gly His Ser Gly Asn Ile Phe Ala Pro Glu Gly Asn
 305 310 315 320
 Tyr Arg Tyr Leu Thr Tyr Gly Ala Glu Lys Leu Pro Gly Gly Ser Tyr
 325 330 335
 Ala Leu Arg Val Gln Gly Glu Pro Ala Lys Gly Glu Met Leu Ala Gly
 340 345 350
 Ala Ala Val Tyr Asn Gly Glu Val Leu His Phe His Thr Glu Asn Gly
 355 360 365
 Arg Pro Tyr Pro Thr Arg Gly Arg Phe Ala Ala Lys Val Asp Phe Gly
 370 375 380
 Ser Lys Ser Val Asp Gly Ile Ile Asp Ser Gly Asp Asp Leu His Met
 385 390 395 400
 Gly Thr Gln Lys Phe Lys Ala Ala Ile Asp Gly Asn Gly Phe Lys Gly
 405 410 415
 Thr Trp Thr Glu Asn Gly Ser Gly Asp Val Ser Gly Lys Phe Tyr Gly
 420 425 430
 Pro Ala Gly Glu Glu Val Ala Gly Lys Tyr Ser Tyr Arg Pro Thr Asp
 435 440 445
 Ala Glu Lys Gly Gly Phe Gly Val Phe Ala Gly Lys Lys Glu Gln Asp
 450 455 460

<210> 7
 <211> 644
 <212> PRT
 <213> N. meningitidis

<400> 7
 Met Ala Ser Pro Asp Val Lys Ser Ala Asp Thr Leu Ser Lys Pro Ala
 1 5 10 15

Ala	Pro	Val	Val	Ser	Glu	Lys	Glu	Thr	Glu	Ala	Lys	Glu	Asp	Ala	Pro	20	25	30
Gln	Ala	Gly	Ser	Gln	Gly	Gln	Gly	Ala	Pro	Ser	Ala	Gln	Gly	Gly	Gln	35	40	45
Asp	Met	Ala	Ala	Val	Ser	Glu	Glu	Asn	Thr	Gly	Asn	Gly	Gly	Ala	Ala	50	55	60
Ala	Thr	Asp	Lys	Pro	Lys	Asn	Glu	Asp	Glu	Gly	Ala	Gln	Asn	Asp	Met	65	70	75
Pro	Gln	Asn	Ala	Ala	Asp	Thr	Asp	Ser	Leu	Thr	Pro	Asn	His	Thr	Pro	85	90	95
Ala	Ser	Asn	Met	Pro	Ala	Gly	Asn	Met	Glu	Asn	Gln	Ala	Pro	Asp	Ala	100	105	110
Gly	Glu	Ser	Glu	Gln	Pro	Ala	Asn	Gln	Pro	Asp	Met	Ala	Asn	Thr	Ala	115	120	125
Asp	Gly	Met	Gln	Gly	Asp	Asp	Pro	Ser	Ala	Gly	Gly	Glu	Asn	Ala	Gly	130	135	140
Asn	Thr	Ala	Ala	Gln	Gly	Thr	Asn	Gln	Ala	Glu	Asn	Asn	Gln	Thr	Ala	145	150	155
Gly	Ser	Gln	Asn	Pro	Ala	Ser	Ser	Thr	Asn	Pro	Ser	Ala	Thr	Asn	Ser	165	170	175
Gly	Gly	Asp	Phe	Gly	Arg	Thr	Asn	Val	Gly	Asn	Ser	Val	Val	Ile	Asp	180	185	190
Gly	Pro	Ser	Gln	Asn	Ile	Thr	Leu	Thr	His	Cys	Lys	Gly	Asp	Ser	Cys	195	200	205
Ser	Gly	Asn	Asn	Phe	Leu	Asp	Glu	Glu	Val	Gln	Leu	Lys	Ser	Glu	Phe	210	215	220
Glu	Lys	Leu	Ser	Asp	Ala	Asp	Lys	Ile	Ser	Asn	Tyr	Lys	Lys	Asp	Gly	225	230	235
Lys	Asn	Asp	Gly	Lys	Asn	Asp	Lys	Phe	Val	Gly	Leu	Val	Ala	Asp	Ser	245	250	255
Val	Gln	Met	Lys	Gly	Ile	Asn	Gln	Tyr	Ile	Ile	Phe	Tyr	Lys	Pro	Lys	260	265	270
Pro	Thr	Ser	Phe	Ala	Arg	Phe	Arg	Arg	Ser	Ala	Arg	S						